

Claims

- [c1] 1. A load bearing structure comprising:
a panel having an upper and a lower surface and at least three sides, at least one of the sides includes a wedge-shaped edge;
a rigid honeycomb core between the upper and lower surface, a continuous layer surrounding the honeycomb core; and
one or more connector means located on at least one side of the panel.
- [c2] 2. The load bearing structure as set forth in claim 1, wherein the rigid honeycomb core is substantially hollow.
- [c3] 3. The load bearing structure as set forth in claim 2, wherein the rigid honeycomb core is comprised of a substantially plastic composition.
- [c4] 4. The load bearing structure as set forth in claim 3, wherein the substantially plastic composition is polypropylene thermoplastic.
- [c5] 5. The load bearing structure as set forth in claim 2, wherein the rigid honeycomb core is made from material

selected from a group consisting of metal, resin reinforced paper, fiberglass, and wood.

- [c6] 6. The load bearing structure as set forth in claim 1, wherein the substantially continuous layer is comprised of reinforcing fibers.
- [c7] 7. The load bearing structure as set forth in claim 5, wherein the reinforcing fibers are selected from a group consisting of fiberglass, carbon fiber, aramid fiber, and any combination thereof.
- [c8] 8. The load bearing structure as set forth in claim 1, wherein at least two adjacent sides of the panel each comprise a wedge-shaped edge.
- [c9] 9. The load bearing structure as set forth in claim 7, wherein one wedge-shaped edge descends from the top to the bottom of the panel, and the adjacent wedge-shaped edge ascends from the bottom to the top of the panel.
- [c10] 10. The load bearing structure as set forth in claim 8, wherein the connector means are located on each side of the panel that comprises a wedge-shaped edge.
- [c11] 11. The load bearing structure as set forth in claim 9, wherein the connector means are selected from a group

consisting of apertures, screw fastener, a removable rivet, a clip, a buckle, a clasp, a clamp, a brace, a grip, a bolt, a screw, a lock, a nail, and hook and loop fasteners.

[c12] 12. The load bearing structure as set forth in claim 1, wherein the connector means are located on the side of the panel with the wedge-shaped edge.

[c13] 13. The load bearing structure as set forth in claim 12, wherein the connector means are selected from a group consisting of an aperture, a screw fastener, a removable rivet, a clip, a buckle, a clasp, a clamp, a brace, a grip, a bolt, a screw, a lock, a nail, and hook and loop fasteners.

[c14] 14. The load bearing structure as set forth in claim 1, wherein the substantially continuous layer is coated with a coating selected from a group consisting of slip-resistant coatings, chemical resistant coatings, fire resistant coatings, color coatings, anti-static coatings, and any combination thereof.

[c15] 15. A load bearing structure comprising:
a panel having an upper surface and a lower surface, and side edges surrounding and extending between the upper surface and the lower surface, at least two adjacent sides of the panel form a wedge-shaped edge;
a substantially hollow honeycomb core between the up-

per and lower surface formed of a substantially plastic composition;
a continuous surrounding layer including reinforcing fibers selected from a group consisting of fiberglass, carbon fiber, aramid fiber, and any combination thereof;
and
one or more connector means located on each side of the panel on the wedge-shaped edges.

[c16] 16. The load bearing structure as set forth in claim 14, wherein each side of the panel comprises a wedge-shaped edge and wherein one wedge-shaped edge descends from the top to the bottom of the panel and an adjacent wedge-shaped edge ascends from the bottom to the top of the panel.

[c17] 17. The load bearing structure as set forth in claim 16 wherein at least one stress-strain sensor is coupled to the panel.

[c18] 18. A load bearing structure comprising:
a panel having an upper surface and a lower surface, wherein the upper and lower surfaces are offset relative to one another such that the upper surface forms a lower peripheral extension and the lower surface forms an upper peripheral extension and wherein the panel is surrounded by a substantially continuous layer;

a substantially hollow rigid honeycomb core between the upper and lower surface; and
one or more connector means located on at least one side of the panel.

[c19] 19. The load bearing structure as set forth in claim 18, wherein the substantially hollow rigid honeycomb core is comprised of a substantially plastic composition.

[c20] 20. The load bearing structure as set forth in claim 18, wherein the substantially continuous layer is comprised of reinforcing fibers selected from a group consisting of fiberglass, carbon fiber, aramid fiber, and any combination thereof.